

Translated Protein-Frame: 3-Nucleotide 111 to 1130  
 mz5004\_vh.seq Length: 2691 24/Aug/1999

1 GCGGCCGCGTGACCATCACGTGCTCCAGCTACCAGGGCTACCCCTG  
 46 AGGCTGAGGTGTTCTGGCAGGATGGCAGGGTGTGCCCTGACTG  
  
 91 GCAACGTGACCACGTCGCAGATGGCAACGAGCAGGGCTGTTG  
       MetAlaAsnGluGlnGlyLeuPheA  
  
 136 ATGTGCACAGCATTGCGGGTGGTGGCTGGGTGCAAATGGCACCT  
       spValHisSerIleLeuArgValValLeuGlyAlaAsnGlyThrT  
  
 181 ACAGCTGCCTGGTGCACACCCCGTGGCTGCAGCAGGATGCGCACA  
       yrSerCysLeuValArgAsnProValLeuGlnGlnAspAlaHisS  
  
 226 GCTCTGTCACCATCACACCCAGAGAAGCCCCACAGGAGCCGTGG  
       erSerValThrIleThrProGlnArgSerProThrGlyAlaValG  
  
 271 AGGTCCAGGTCCCTGAGGACCCGGTGGTGGCCCTAGTGGCACC  
       luValGlnValProGluAspProValValAlaLeuValGlyThrA  
  
 316 ATGCCACCCCTGCACGTGCTCCTCTCCCCCGAGCCTGGCTTCAGCC  
       spAlaThrLeuHisCysSerPheSerProGluProGlyPheSerL  
  
 361 TGACACAGCTAACCTCATCTGGCAGCTGACAGACACCAAACAGC  
       euThrGlnLeuAsnLeuIleTrpGlnLeuThrAspThrLysGlnL  
  
 406 TGGTGCACAGTTCACCGAAGGCCGGGACCAAGGGCAGCGCCTATG  
       euValHisSerPheThrGluGlyArgAspGlnGlySerAlaTyrA  
  
 451 CCAACCGCACGGCCCTTCCCGGACCTGCTGGCACAGGCAATG  
       laAsnArgThrAlaLeuPheProAspLeuLeuAlaGlnGlyAsnA  
  
 496 CATCCCTGAGGCTGCAGCGCGTGCCTGGCGACGAGGGCAGCT  
       laSerLeuArgLeuGlnArgValArgValAlaAspGluGlySerP  
  
 541 TCACCTGCTTCGTGAGCATCCGGGATTCGGCAGCGCTGCCGTCA  
       heThrCysPheValSerIleArgAspPheGlySerAlaAlaValS  
  
 586 GCCTGCAGGTGGCCGCTCCCTACTCGAAGCCCAGCATGACCCTGG  
       erLeuGlnValAlaAlaProTyrSerLysProSerMetThrLeuG  
  
 631 AGCCCCAACAAAGGACCTGCGGCCAGGGACACGGTGACCATCACGT  
       luProAsnLysAspLeuArgProGlyAspThrValThrIleThrC  
  
 676 GCTCCAGCTACCGGGGCTACCCCTGAGGCTGAGGTGTTCTGGCAGG  
       ysSerSerTyrArgGlyTyrProGluAlaGluValPheTrpGlnA  
  
 721 ATGGGCAGGGTGTGCCCTGACTGGCAACGTGACCACGTGCGCAGA  
       spGlyGlnGlyValProLeuThrGlyAsnValThrThrSerGLnM  
  
 766 TGGCCAACGAGCAGGGCTTGTGATGTGCACAGCGTCCCTGCCGG  
       etAlaAsnGluGlnGlyLeuPheAspValHisSerValLeuArgV

Fig. 1

SUBSTITUTE SHEET (RULE 26)

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811 TGGTGCTGGGTGCGAATGGCACCTACAGCTGCCCTGGTGCGCAACC  
alValLeuGlyAlaAsnGlyThrTyrSerCysLeuValArgAsnP

856 CCGTGCTGCAGCAGGATGCGCACGGCTCTGTCACCACAGGGC  
roValLeuGlnGlnAspAlaHisGlySerValThrIleThrGlyG

901 AGCCTATGACATTCCCCCAGAGGCCCTGTGGGTGACCGTGGGC  
lnProMetThrPheProProGluAlaLeuTrpValThrValGlyL

946 TCTCTGCTCTGCTCATTCGACTGCTGGTGGCCCTGGCTTCGTGT  
euSerValCysLeuIleAlaLeuLeuValAlaLeuAlaPheValC

991 GCTGGAGAAAGATCAAACAGAGCTGTGAGGAGGAGAATGCAGGAG  
ysTrpArgLysIleLysGlnSerCysGluGluGluAsnAlaGlyA

1036 CCGAGGACCAGGATGGGGAGGGAGAAGGCTCCAAGACAGCCCTGC  
laGluAspGlnAspGlyGluGlyGluGlySerLysThrAlaLeuG

1081 AGCCTCTGAAACACTCTGACAGCAAAGAAGATGATGGACAAGAAA  
lnProLeuLysHisSerAspSerLysGluAspAspGlyGlnGluI

1126 TAGCCTGACCATGAGGACCAGGGAGCTGCTACCCCTCCCTACAGC  
leAla

1171 TCCTACCCCTGGCTGCAATGGGGCTGCACTGTGAGGCCCTGCC  
1216 CAACAGATGCATCCTGCTCTGACAGGGTGGGCTCCTCTCCAAAGG  
1261 ATGCGATAACACAGACCACTGTGCAAGCCTTATTTCTCCAATGGACA  
1306 TGATTCCCAAGTCATCCTGCTGCCTTTTCTTATAGACACAATG  
1351 AACAGACCAACCAACCTTAGTCTCTAAGTCATCCTGCTGCT  
1396 GCCTTATTCACAGTACATACATTCTTAGGGACACAGTACACTG  
1441 ACCACATCACCACCCCTCTTCCAGTGCTGCGTGGACCATCTGG  
1486 CTGCCTTTTCTCAAAGATGCAATATTCAAGACTGACTGACCC  
1531 CCTGCCCTATTCACAAAGACACGATGCAAGTCACCCCGGCCT  
1576 TGTTCTCCAATGGCCGTGATACACTAGTGATCATGTTGAGCC  
1621 GCTTCCACCTGCATAGAATCTTCTTCAGACAGGGACAGTGC  
1666 GGCCTCAACATCTCCTGGAGTCTAGAAGCTGTTCCCTTCC  
1711 CTTCCTCCTCTGCTCTAGCCTTAATACTGGCCTTTCCCTCC  
1756 GCCCCAAGTGAAGACAGGGCACTCTGCGCCACCACATGCACAGC  
1801 TGTGCATGGAGACCTGCAGGTGCACGTGCTGGAACACGTGTGGTT  
1846 CCCCCCTGGCCCAGCCTCTGCACTGCCCCCTCTCCCTGCC  
1891 TCCTCCCCACGGAAGCATGTGCTGGTCACACTGGTTCTCAGGGG  
1936 TCTGTGATGGGGCCCTGGGGTCAGCTCTGTCCTCTGCC  
1981 TCACCTCTTGTCCCTTCTTCACTGTATCCATTCAAGTTGATGT  
2026 TTATTGAGCAACTACAGATGTCAGCACTGTGTTAGGTGCTGGGG  
2071 CCCTGCGTGGGAAGATAAAGTCCCTCCCTCAAGGACTCCCCATCC  
2116 AGCTGGGAGACAGACAACACTACACTGCAACCTGCGGTTGCA  
2161 GGGGGCTCCTGCCTGGCTCCCTGCTCCACACCTCCTGTGGCTC  
2206 AAGGCTCCTGGATACCTCACCCCCATCCCACCCATAATTCTTAC  
2251 CCAGAGCATGGGTTGGGGCGGAAACCTGGAGAGAGGGACATAGC  
2296 CCCTCGCCACGGCTAGAGAATCTGGTGGTGTCAAAATGTC  
2341 CAGGTGTGGCAGGTGGCAGGCACCAAGGCCCTCTGGACCTTC  
2386 ATAGCAGCAGAAAAGGCAGAGCCTGGGGCAGGGCAGGGCAGGAA  
2431 TGCTTGGGGACACCAGAGGGACTGCCCTCCACCCACCATGGT  
2476 GCTATTCTGGGGCTGGGGCAGTCTTCCCTGGCTTGCC  
2521 AGCTCCGGCCTGGTAGAGTGA  
GACTTCAGACGTTCTGATGCC

Fig. 1 Continued

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2566 TTCCGGATGTCATCTCTCCCTGCCCCAGGAATGGAAGATGTGAGG  
2611 ACTTCTAATTTAAATGTGGGACTCGGAGGGATTTGTAAACTGGG  
2656 GGTATATTTGGGGAAAATAAATGTCTTGTAAAAA

Fig. 1 Continued

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Translated Protein-Frame: 2-Nucleotide 2 to 1324  
 Mz5004 12/16/99

1 CCCTCTTCCCGAACCTGCTGGCACAGGGCAACGCATCCCTGAGGC  
     ProLeuProGlyProAlaGlyThrGlyGlnArgIleProGluAl  
 46 TGCAGCGCGTGCCTGAGCGGACGAGGGCAGCTTCACCTGCTTCG  
     aAlaAlaArgAlaCysSerGlyArgGlyGlnLeuHisLeuLeuAr  
 91 TGAGCATCCGGGATTCGGCAGCGCTGCCGTAGCCTGCAGGTGG  
     gGluHisProGlyPheArgGlnArgCysArgGlnProAlaGlyG1  
 136 CCGCTCCCTACTCGAACGCCAGCATGACCCTGGAGGCCAACAGG  
     yArgSerLeuLeuGluAlaGlnHisAspProGlyAlaGlnGlnG1  
 181 ACCTGCGGCCAGGGGACACGGTGTGACCATCACGTGCTCCAGCTA  
     yProAlaAlaArgGlyHisGlyValThrIleThrCysSerSerTy  
 226 CCAGGGCTACCCTGAGGCTGAGGTGTTCTGGCAGGATGGCAGGG  
     rGlnGlyTyrProGluAlaGluValPheTrpGlnAspGlyGlnG1  
 271 TGTGCCCTGACTGGCAACGTGACCACGTCGCAGATGCCAACGAA  
     yValProLeuThrGlyAsnValThrSerGlnMetAlaAsnG1  
 316 GCAGGGCTTGTGATGTGCACAGCATCCTGCCGGTGGTGCTGGG  
     uGlnGlyLeuPheAspValHisSerIleLeuArgValValLeuG1  
 361 TGCAAATGGCACCTACAGCTGCCCTGGTGCACACCCCCGTGCTGCA  
     yAlaAsnGlyThrTyrSerCysLeuValArgAsnProValLeuG1  
 406 GCAGGATGCGCACAGCTGTCAACCACACACCCCCAGAGAAGGCC  
     nGlnAspAlaHisSerSerValThrIleThrProGlnArgSerPr  
 451 CACAGGAGCCGTGGAGGTCCAGGTCCCTGAGGACCCGGTGGTGGC  
     oThrGlyAlaValGluValGlnValProGluAspProValValAl  
 496 CCTAGTGGGCACCGATGCCACCCCTGCACTGCTCCTCTCCCCCGA  
     aLeuValGlyThrAspAlaThrLeuHisCysSerPheSerProG1  
 541 GCCTGGCTTCAGCCTGACACAGCTAACCTCATCTGGCAGCTGAC  
     uProGlyPheSerLeuThrGlnLeuAsnLeuIleTrpGlnLeuTh  
 586 AGACACCAAACAGCTGGTGCACAGTTCACCGAACGGCCGGGACCA  
     rAspThrLysGlnLeuValHisSerPheThrGluGlyArgAspG1  
 631 GGGCAGCGCCTATGCCAACCGCACGGCCCTCTCCCGAACCTGCT  
     nGlySerAlaTyrAlaAsnArgThrAlaLeuPheProAspLeuLe  
 676 GGCACAAAGGCAATGCATCCCTGAGGCTGCAGCGCGTGCCTGCG  
     uAlaGlnGlyAsnAlaSerLeuArgLeuGlnArgValArgValAl  
 721 GGACGAGGGCAGCTTCACCTGCTTCGTGAGCATCCGGGATTCGG  
     aAspGluGlyS rPheThrCysPheValSerIleArgAspPheG1

Fig. 2

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766 CAGCGCTGCCGTAGCCTGCAGGTGGCCGCTCCCTACTCGAAGCC  
ySerAlaAlaValSerLeuGlnValAlaAlaProTyrSerLysPr  
811 CAGCATGACCCCTGGAGCCCCAACAAAGGACCTGCAGGCCAGGGGACAC  
oSerMetThrLeuGluProAsnLysAspLeuArgProGlyAspTh  
856 GGTGACCACATCACGTGCTCCAGCTACCGGGCTACCTGAGGCTGA  
rValThrIleThrCysSerSerTyrArgGlyTyrProGluAlaG1  
901 GGTGTTCTGGCAGGATGGGCAGGGTGTGCCCCCTGACTGGCAACGT  
uValPheTrpGlnAspGlyGlnGlyValProLeuThrGlyAsnVa  
946 GACCACGTCGAGATGGCCAACGAGCAGGGCTTGTGATGTGCA  
1ThrThrSerGlnMetAlaAsnGluGlnGlyLeuPheAspValHi  
991 CAGCGTCTGGGGTGGTGCTGGGTGCGAACATGGCACCTACAGCTG  
sSerValLeuArgValValLeuGlyAlaAsnGlyThrTyrSerCy  
1036 CCTGGTGCACACCCCGTGTGCACAGGATGCGCACGGCTCTGT  
sLeuValArgAsnProValLeuGlnGlnAspAlaHisGlySerVa  
1081 CACCATCACAGGGCAGCCTATGACATTCCCCCAGAGGCCCTGTG  
1ThrIleThrGlyGlnProMetThrPheProProGluAlaLeuTr  
1126 GGTGACCGTGGGCTCTGTCTGTCTGCATTGCACTGCTGGTGGC  
pValThrValGlyLeuSerValCysLeuIleAlaLeuLeuValAl  
1171 CCTGGCTTCGTGCTGGAGAAAGATCAAACAGAGCTGTGAGGA  
aLeuAlaPheValCysTrpArgLysIleLysGlnSerCysGluG1  
1216 GGAGAATGCAGGAGCCGAGGACCAGGATGGGAGGGAGAAGGCTC  
uGluAsnAlaGlyAlaGluAspGlnAspGlyGluGlyGluGlySe  
1261 CAAGACAGCCCTGCAGCCTTGAAACACTCTGACAGCAAAGAAGA  
rLysThrAlaLeuGlnProLeuLysHisSerAspSerLysGluAs  
1306 TGATGGACAAGAAATAGCCTGACCATGAGGACCAGGGAGCTGCTA  
pAspGlyGlnGluIleAla  
1351 CCCCTCCCTACAGCTCTACCCCTCTGGCTGCAATGGGCTGCACT  
1396 GTGAGCCCTGCCCTAACAGATGCATCCTGCTCTGACAGGTGGC  
1441 TCCTTCCTCAAAGGATGCGATAACACAGACCACGTGCAAGCCTTAT  
1486 TTCTCCAATGGACATGATTCCCAAGTCATCCTGCTGCCTTTTC  
1531 TTATAGACACAATGAACAGACCACCCACAACCTTAGTTCTCTAAG  
1576 TCATCCTGCCTGCTGCCTTATTCACAGTACATACATTCTTAGG  
1621 GACACAGTACACTGACCACATCACCAACCCCTCTTCCAGTGTG  
1666 CGTGGACCACATCTGGCTGCCTTTCTCCAAAAGATGCAATATTC

Fig. 2 Continued

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1711 AGACTGACTGACCCCTGCCTTATTCACCAAAGACACGATGCAT  
1756 AGTCACCCGGCCTTGTTCCTCCAATGGCGTGATACACTAGTGA  
1801 TCATGTTCAAGCCCTGCTCCACCTGCATAGAAATCTTTCTTCTCA  
1846 GACAGGGACAGTGCAGGCCTAACATCTCCTGGAGTCTAGAAGCTG  
1891 TTTCCCTTCCCCTCCTCCTCTGCTCTAGCCTTAATACTGG  
1936 CCTTTCCCTCCCTGCCCAAGTGAAGACAGGGCACTCTGCGCCC  
1981 ACCACATGCACAGCTGTGCATGGAGACCTGCAGGTGCACGTGCTG  
2026 GAACACGTGTGGTTCCCCCTGGCCAGCCTCCTCTGCAGTGCCCC  
2071 CTCTCCCTGCCCATCCTCCCCACGGAAGCATGTGCTGGTCACAC  
2116 TGGTTCTCCAGGGGTCTGTGATGGGGCCCTGGGGGTCAAGCTTCT  
2161 GTCCCTCTGCCTCTCACCTCTTGTGATGGGGCCCTGGGGGTCAAGCTTCT  
2206 CATTCAAGTTGATGTTATTGAGCAACTACAGATGTCAGCACTGTG  
2251 TTAGGTGCTGGGGCCCTGCGTGGGAAGATAAAAGTTCCCTCCCTCA  
2296 AGGACTCCCCATCCAGCTGGGAGACAGACAACAACTACACTGCA  
2341 CCCTGCGGTTTGCAGGGGCTCCTGCCTGGCTCCCTGCTCCACAC  
2386 CTCCCTGTGGCTCAAGGCTCCTGGATAACCTCACCCCCATCCCA  
2431 CCCATAATTCTTACCCAGAGCATGGGTTGGGGCGGAAACCTGGA  
2476 GAGAGGGACATAGCCCCCTGCCACGGCTAGAGAAATCTGGTGGTGT  
2521 CCAAAATGTCTGTCAGGTGTGGCAGGTGGCAGGCACCAAGGC  
2566 CCTCTGGACCTTCATAGCAGCAGAAAAGGCAGAGCCTGGGCAG  
2611 GGCAGGGCCAGGAATGCTTGGGACACCGAGGGACTGCC  
2656 ACCCCCCACCATGGTGTATTCTGGGCTGGGCAGTCTTCTG  
2701 GCTTGCCCTGCCCCAGCTCCGGCTCTGGTAGAGTGAGACTTCA  
2746 GACGTTCTGATGCCCTCCGGATGTCATCTCTCCCTGCCAGGAA  
2791 TGGAAGATGTGAGGACTTCTAATTAAATGTGGGACTCGGAGGGA  
2836 TTTTGTAAAATGGGGTATATTGGGGAAAATAAATGTCTTGT  
2881 AAAAAA

Fig. 2 Continued

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Translated Protein 534 aa-Frame: 3-Nucleotide 60 to 1661  
 2/14/00

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 1  GCGGCCGCGGGGCAGCCTTCCACCACGGGAGCCCAGCTGTCAGC
 46  CGCCTCACAGGAAGATGCTGCGTCGGCGGGCAGCCCTGGCATGG
               MetLeuArgArgArgGlySerProGlyMetG
 91  GTGTGCATGTGGGTGCAGCCCTGGGAGCACTGTGGTTCTGCCTCA
               lyValHisValGlyAlaAlaLeuGlyAlaLeuTrpPheCysLeuT
136  CAGGAGCCCTGGAGGTCCAGGTCCCTGAAGACCCAGTGGTGGCAC
               hrGlyAlaLeuGluValGlnValProGluAspProValValAlaL
181  TGGTGGGCACCGATGCCACCCCTGTGCTGCTCCTCTCCCCTGAGC
               euValGlyThrAspAlaThrLeuCysCysSerPheSerProGluP
226  CTGGCTTCAGCCTGGCACAGCTAACCTCATCTGGCAGCTGACAG
               roGlyPheSerLeuAlaGlnLeuAsnLeuIleTrpGlnLeuThrA
271  ATACCAAAACAGCTGGTGCACAGCTTGCTGAGGGCCAGGACCAGG
               spThrLysGlnLeuValHisSerPheAlaGluGlyGlnAspGlnG
316  GCAGGCCCTATGCCAACCGCACGCCCTTCCCGGACCTGCTGG
               lySerAlaTyrAlaAsnArgThrAlaLeuPheProAspLeuA
361  CACAGGGCAACGCATCCCTGAGGCTGCAGCGCGTGCCTGGCGG
               1aGlnGlyAsnAlaSerLeuArgLeuGlnArgValArgValAlaA
406  ACGAGGGCAGCTTCACCTGCTTGTGAGCATCCGGATTTCGGCA
               spGluGlySerPheThrCysPheValSerIleArgAspPheGlyS
451  GCGCTGCCGTCAGCCTGCAGGTGGCGCTCCCTACTCGAACCCA
               erAlaAlaValSerLeuGlnValAlaAlaProTyrSerLysProS
496  GCATGACCCCTGGAGCCAAACAAGGACCTGCGGCCAGGGACACGG
               erMetThrLeuGluProAsnLysAspLeuArgProGlyAspThrV
541  TGACCATCACGTGCTCCAGCTACCAGGGCTACCCCTGAGGCTGAGG
               alThrIleThrCysSerSerTyrGlnGlyTyrProGluAlaGluV
586  TGTTCTGGCAGGATGGGCAGGGTGTGCCCTGACTGGCAACGTGA
               alPheTrpGlnAspGlyGlnGlyValProLeuThrGlyAsnValT
631  CCACGTGCGAGATGGCCAACGAGCAGGGCTTGTGATGTGCACA
               hrThrSerGlnMetAlaAsnGluGlnGlyLeuPheAspValHisS
676  GCATCCTGCCGGTGGTGCTGGGTGCAAATGGCACCTACAGCTGCC
               erIleLeuArgValValLeuGlyAlaAsnGlyThrTyrSerCysL
721  TGGTGGCAACCCCGTGCAGCAGGATGCCACAGCTCTGTCA
               euValArgAsnProValLeuGlnGlnAspAlaHisSerSerValT

```

Fig. 3

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766 CCATCACACCCAGAGAAGCCCCACAGGAGCCGTGGAGGTCCAGG  
hrIleThrProGlnArgSerProThrGlyAlaValGluValGlnV  
811 TCCCTGAGGACCCGGTGGTGGCCCTAGTGGGCACCGATGCCACCC  
alProGluAspProValValAlaLeuValGlyThrAspAlaThrL  
856 TCGCGCTGCTCTTCTCCCCCGAGCCTGGCTTCAGCCTGGCACAGC  
euArgCysSerPheSerProGluProGlyPheSerLeuAlaGlnL  
901 TCAACCTCATCTGGCACGCTGACAGACACCAAAACAGCTGGTGCACA  
euAsnLeuIleTrpGlnLeuThrAspThrLysGlnLeuValHisS  
946 GTTTCACCGAAGGCCGGACCAGGGCAGCGCCTATGCCAACCGCA  
erPheThrGluGlyArgAspGlnGlySerAlaTyrAlaAsnArgT  
991 CGGCCCTCTCCCGGACCTGCTGGCACAGGCAATGCATCCCTGA  
hrAlaLeuPheProAspLeuLeuAlaGlnGlyAsnAlaSerLeuA  
1036 GGCTGCAGCGCGTGCCTGGCGAGGGCAGCTTCACCTGCT  
rgLeuGlnArgValArgValAlaAspGluGlySerPheThrCysP  
1081 TCGTGAGCATCCGGATTTCGGCAGCGCTGCCGTAGCCTGCAGG  
heValSerIleArgAspPheGlySerAlaAlaValSerLeuGlnV  
1126 TGGCCGCTCCCTACTCGAACGCCAGCATGACCCCTGGAGCCAAACA  
alAlaAlaProTyrSerLysProSerMetThrLeuGluProAsnL  
1171 AGGACCTGCGGCCAGGGGACACGGTGACCATCACGTGCTCCAGCT  
ysAspLeuArgProGlyAspThrValThrIleThrCysSerSert  
1216 ACCGGGGCTACCCTGAGGCTGAGGTGTTCTGGCAGGATGGGCAGG  
yrArgGlyTyrProGluAlaGluValPheTrpGlnAspGlyGlnG  
1261 GTGTGCCCTGACTGGCAACGTGACCACGTGGCAGATGGCCAACG  
lyValProLeuThrGlyAsnValThrThrSerGlnMetAlaAsnG  
1306 AGCAGGGCTTGTGATGTGCACAGCGCCTGCGGGTGGTGCTGG  
luGlnGlyLeuPheAspValHisSerValLeuArgValValLeuG  
1351 GTGCGAATGGCACCTACAGCTGCCCTGGTGCACGAGCTGCTGC  
lyAlaAsnGlyThrTyrSerCysLeuValArgAsnProValLeuG  
1396 AGCAGGATGCGCACGGCTCTGTCACCATCACAGGGCAGCCTATGA  
1nGlnAspAlaHisGlySerValThrIleThrGlyGlnProMetT  
1441 CATTCCCCCAGAGGCCCTGTGGGTGACCGTGGGCTGTCTGTCT  
hrPheProProGluAlaLeuTrpValThrValGlyLeuSerValC  
1486 GTCTCATTGCACTGCTGGTGGCCCTGGCTTCGTGTGCTGGAGAA  
ysLeuIleAlaLeuLeuValAlaLeuAlaPheValCysTrpArgL  
1531 AGATCAAACAGAGCTGTGAGGAGGAGAATGCAGGAGCTGAGGACC  
ysIleLysGlnSerCysGluGluGluAsnAlaGlyAlaGluAspG  
1576 AGGATGGGGAGGGAGAAGGCTCCAAGACAGCCCTGCAGCCTCTGA  
1nAspGlyGluGlyGluGlySerLysThrAlaLeuGlnProLeuL

Fig. 3 Continued

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1621 AACACTCTGACAGCAAAGAAGATGATGGACAAGAAATAGCCTGAC  
ysHisSerAspSerLysGluAspAspGlyGlnGluIleAla  
1666 CATGAGGACCAGGGAGCTGCTACCCCTCCCTACAGCTCCTACCCCT  
1711 CTGGCTGCAATGGGGCTGCAGTGTGAGCCCTGCCCCAACAGATG  
1756 CATCCTGCTCTGACAGGTGGGCTCCTCTCCAAAGGATGCGATAC  
1801 ACAGACCACTGTGCAGCCTTATTCCTCCAATGGACATGATTCCCA  
1846 AGTCATCCTGCTGCCTTTCTTATAGACACAATGAACAGACCA  
1891 CCCACAAACCTTAGTTCTCTAAGTCATCCTGCCTGCTGCCTTATTT  
1936 CACAGTACATACATTCTTAGGGACACAGTACACTGACCCACATCA  
1981 CCACCCCTTTCTCCAGTGCTGCGTGGACCATCTGGCTGCCTTT  
2026 TTCTCCAAAAGATGCAATATTCAAGACTGACTGACCCCTGCCTTA  
2071 TTTCACCAAAGACACGATGCATAGTCACCCGACCTTGTTCCTCC  
2116 AATGGCCGTGATACACTAGTGATCATGTTAGCCCTGCTTCCACC  
2161 TGCATAGAATCTTTCTTCAGACAGGGACAGTGCGGGCTCAAC  
2206 ATCTCCTGGAGTCTAGGCGGCCGC

Fig. 3 Continued

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## Multiple Alignment:

B7-1_HUMAN	--MGHTRRQGTSPSECPYLNFQHVMAGIS--	HPCSGVIRHVTKEVKEVATESGCHNVSV
Q28499_rhesus_B7-1	--MGHTRRQGTSPSECPYLKFQHVMAGIS--	HPCSGVIRHVTKEVKEVATESGCHNVSV
B7-1_RABBIT	--MGHTLPGTGPLPECLHLKLQHVMAGIS--	HPSGGISOMVTKSVKEVATESGCHNVSV
U57755_cat_B7-1	--MGHAARKWTKPLLKHFPYPKLFFHVMAGIS--	YPCSGVIRHVTKEVKEVATESGCHNVSV
B7_1_MOUSE	MACNCQLMQDTPLLHFPCPRLIHFVIALSOSSSDVDEOQSKSVDKVLEPGCRNSPH	
AF157827_cat_B7-2	-----MGICDSTMGESETHVWALI-----	LSGVSSPKRSQAVFNKIGELPGCRNSPH
aaf17297_dog_B7-2	-----MYLACTMEIHNHIFVWVLE-----	LYGAASMRKSQAVFNKIGELPGCRNSPH
176088_pig_B7-2	-----MGISNEIFVWVLE-----	LSGAASMRKSQAVFNKIGELPGCRNSPH
u04343_hu_B7-2	-----MGISNEIFVWVLE-----	LSGAASMRKSQAVFNKIGELPGCRNSPH
P42082_mus_B7-2	-----MDPECTMGEFAIILIFVWVLE-----	ISDAVSVETDVFNGTAYIPCPETKAQ
aac52336_mus_B7-2_alt.spl	-----MGFAIILIFVWVLE-----	ISDAVSVETDVFNGTAYIPCPETKAQ
nz5020.protein	-----MLRRRGSPGMGVHNGAALGAHWFCHGAEVQVFPEDHVALVGTIDATPGCGSESPEP	
Q99420q99420_put_hum_B7-3	-----MASFLAFLLNFRVCFILLQELMPESAQFSVLGPSGHILAVVGEADEPGELFTPIM	

B7-1_HUMAN	E-BIAQTRVWQKEKKVVLIMMS	GDMN--WVPEYKRNTRIEDITNN--	ISTVILAA
Q28499_rhesus_B7-1	E-BIAQTRVWQKEKKVVLIMMS	GDMN--WVPEYKRNTRIEDITNN--	ISTVILAA
B7-1_RABBIT	D-BIAQTRVWQKDKQVVLIMMS	CGVE--WVPEYKRNTRIEDITNN--	ISTVILAA
U57755_cat_B7-1	K-BIAQTRVWQKDKQVVLIMMS	CKVQ--WVPEYKRNTRIEDITNN--	HSTVIMAA
B7_1_MOUSE	E-DESEDRKIKWQHDKVVLISVIA	CKLK--WVPEYKRNTRIEDITNN--	YSMEHLGC
AF157827_cat_B7-2	NISIDEELVWVHODOQKIVLYEELR	GRENQPVVILKVKYKGRISSEDKDN--	WLERLEI
aaf17297_dog_B7-2	NISIDEELVWVHODOQKIVLYEELR	GRENQPVVILKVKYKGRISSEDKDN--	WLERLEI
176088_pig_B7-2	NISIDEELVWVHODOQKIVLYEELR	QEKEPKENVAVSYKGRISSEDKDN--	WLERLEI
u04343_hu_B7-2	NISIDEELVWVHODOQKIVLYEELR	QEKEPKDSVAVSYKGRISSEDKDN--	WLERLEI
P42082_mus_B7-2	NISIDEELVWVHODOQKIVLYEELR	QEKEKLDSVAVSYKGRISSEDKDN--	WLERLEI
aac52336_mus_B7-2_alt.spl	NISIDEELVWVHODOQKIVLYEELR	QEKEKLDSVAVSYKGRISSEDKDN--	WLERLEI
nz5020.protein	GPSEBAQINHIVMOLTTKQEVHVSFAEGCQ20	GSAYANRHALFPDLLAQGNAHLRQD	
Q99420q99420_put_hum_B7-3	S--ASTWEEKVVSSSLRQKVNVYADCKEVEDRQSAFYKGRISILRDGITAGKAARFUDV		

B7-1_HUMAN	RPSDEGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFELPDSN--	ZRRHICCS
Q28499_rhesus_B7-1	RPSDEGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
B7-1_RABBIT	RPSDEGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
U57755_cat_B7-1	RPSDEGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
B7_1_MOUSE	RPSDEGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
AF157827_cat_B7-2	QERDQGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
aaf17297_dog_B7-2	QERDQGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
176088_pig_B7-2	QERDQGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
u04343_hu_B7-2	QERDQGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
P42082_mus_B7-2	QERDQGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
aac52336_mus_B7-2_alt.spl	QERDQGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
nz5020.protein	QERDQGAYEGLVILKVKRDKFKEHLAEVVTEESVVADEPTIESTISDFEIPPSN--	ZRRHICCS
Q99420q99420_put_hum_B7-3	TGSDEWRYLGMQDGDFY-----	EKALVSEVAALGSDLHDMKGYKDGG--WHLFGR

B7-1_HUMAN	MSGGDPEEPHLISVLENGE--EINAINHTVS--	QDPETELYAVVSSKUDENMTTNH--	SEVG
Q28499_rhesus_B7-1	MSGGDPEEPHLISVLENGE--EINAINHTVS--	QDPETELYAVVSSKUDENMTTNH--	SEVG
B7-1_RABBIT	MSGGDPEEPHLISVLENGE--EINAINHTVS--	QDPETELYAVVSSKUDENMTTNH--	SEVG
U57755_cat_B7-1	MSGGDPEEPHLISVLENGE--EINAINHTVS--	QDPETELYAVVSSKUDENMTTNH--	SEVG
B7_1_MOUSE	MSGGDPEEPHLISVLENGE--EINAINHTVS--	QDPETELYAVVSSKUDENMTTNH--	SEVG
AF157827_cat_B7-2	STQGMDPEEPHNMVQLNTENSTTKYDTWKKSONMTELYAVSISPEPEAH-NVSMFC		
aaf17297_dog_B7-2	STQGMDPEEPHNMVQLNTENSTTKYDTWKKSONMTELYAVSISPEPEAH-NVSMFC		
176088_pig_B7-2	STQGMDPEEPHNMVQLNTENSTTKYDTWKKSONMTELYAVSISPEPEAH-NVSMFC		
u04343_hu_B7-2	STQGMDPEEPHNMVQLNTENSTTKYDTWKKSONMTELYAVSISPEPEAH-NVSMFC		
P42082_mus_B7-2	STQGMDPEEPHNMVQLNTENSTTKYDTWKKSONMTELYAVSISPEPEAH-NVSMFC		
aac52336_mus_B7-2_alt.spl	STQGMDPEEPHNMVQLNTENSTTKYDTWKKSONMTELYAVSISPEPEAH-NVSMFC		
nz5020.protein	STQGMDPEEPHNMVQLNTENSTTKYDTWKKSONMTELYAVSISPEPEAH-NVSMFC		
Q99420q99420_put_hum_B7-3	STQGMDPEEPHNMVQLNTENSTTKYDTWKKSONMTELYAVSISPEPEAH-NVSMFC		

Fig. 4

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B7-1_HUMAN	LSVYGVHIVN-QT-EKNTTKQE-----HFIDN--LLPSVATLMS-----VANGIEV
Q28499_rhesus_B7-1	LSVYGVHIVN-QT-EKNTTPKQE-----HFIDN--LLPSVATLMS-----VANGIEV
B7-1_RABBIT	LSVYGVHIVS-QI-EKNSKPKQ-----EPID--QLPFHIIIPMSG-AL-VPTAIV
U57755_cat_B7_1	LSVYGVHIVS-QI-EKNSKSEP-----QPSNN--QLWILILSSIVSGIV-VPTAIV
B7-1_MOUSE	LSVYGVDAHS-KD-EKMEKPE-----DPPDS--KNTLVIETAGPG-A-VPTAIV
AF157827_cat_B7-2	ALQLETHFVLL-SLFNIDAQPKD-----KDPDQ--GHFLVWAVYIV-MF-WFCGV
aaf17297_dog_B7-2	VQDLESMKIP-SLPNIDAKTP-----TPDG--DHILVWAVLYV-ML-VLCCGV
176088-pig_B7-2	VQDLESKHLFSLPCNIDAKPPV-----QPPVP--DHILVWAVLYV-TV-WVCCGV
u04343_hu_B7-2	ILETDKTRIL-SSPSDELEDPQ-----PPP--DHIFVWTSVLP-TV-LICGV
P42082_mus_B7_2	VIETESMIS-SKPLNITQEFPS-----P-----QTYKEITAS-VT-VALLIV
aac52336_mus_B7-2_alt.spl	VIETESMIS-SKPLNITQEFPS-----P-----QTYKEITAS-VT-VALLIV
nz5020.protein	EVRNPVHQODAE-SVTITPQRSPTGAVEVQVPEDPVVALVGTDRLRCSPSPEPGFSEAQ
Q99420q99420_put_hum_B7-3	TERNSLIGEK-TASISIARPPFR-----SAQRWIAAYAG-TLPVLLKLEGGGA
B7-1_HUMAN	CCWTYCFAPRC-----RERPRNE-----RLPRESVRPV-----
Q28499_rhesus_B7-1	CCWTYCFAPRC-----RERPRNE-----RLPRESVRPV-----
B7-1_RABBIT	YCLACRHEVAIW-----KRTPRNEE-----EVGTERLSP-----YLGSAQSSG
U57755_cat_B7_1	RCLWHRPAEW-----RQEMGRA-----RKWKRSHLT-----
B7-1_MOUSE	VVLLRKCFP-----SCFPRNEA-----GRETNNSLP-----GPEEALAEQTVFL-----
AF157827_cat_B7-2	SFKTLRKRNK-----QPGESHEC-----EHIKEPKESK-----QTMERVPYHVPERSD
aaf17297_dog_B7-2	FFUTLRKRK-----QPGESHEC-----EHIKEPKES-----QTKEVRYHETERSD
176088-pig_B7-2	SEUTLRKRK-----QPGESMECG-----EHIKEPKASE-----QTKNRAEVHE-RSD
u04343_hu_B7-2	CLLJWCKWQ-----RPRNSYKC-----GINTMERPESE-----QTKKREKIHIPERSD
P42082_mus_B7_2	LLLJWCKWQ-----QPSRPSNT-----ASKLERDSN-----ADRETNIL-K
aac52336_mus_B7-2_alt.spl	LLLJWCKWQ-----QPSRPSNT-----ASKLERDSN-----ADRETNIL-K
nz5020.protein	LNJWQLTDI-----QIVBSFTTEGRDQGAYANRATLFPDLIAQGNASLRLQRVVRVADL
Q99420q99420_put_hum_B7-3	GYFWWQQQEKTQFRNNREQELREMAWSTMKQEQSTRVLLKEELRWRSIQYASRGERH
B7-1_HUMAN	-----
Q28499_rhesus_B7-1	-----
B7-1_RABBIT	-----
U57755_cat_B7_1	-----
B7-1_MOUSE	-----
AF157827_cat_B7-2	-AQC-VNILKTASGDKNQ-----
aaf17297_dog_B7-2	-AQC-VNISKTAQGDNSTTQF-----
176088-pig_B7-2	-AQCDVNILKTASDDNSTTDF-----
u04343_hu_B7-2	-AQRVFKSSKTSSCDKSDTCP-----
P42082_mus_B7_2	-LEPQIASAKPNAE-----
aac52336_mus_B7-2_alt.spl	-LEPQIASAKPNAE-----
nz5020.protein	SFTCFVSIIDFGSAAVSLQVAAPYSKPSMTLEPNKDLRPGDTVTITCSSYRGYPEAEVFW
Q99420q99420_put_hum_B7-3	SAYNEWKKALFKPKGEEMLQMRLLHFV
B7-1_HUMAN	-----
Q28499_rhesus_B7-1	-----
B7-1_RABBIT	-----
U57755_cat_B7_1	-----
B7-1_MOUSE	-----
AF157827_cat_B7-2	-----
aaf17297_dog_B7-2	-----
176088-pig_B7-2	-----
u04343_hu_B7-2	-----
P42082_mus_B7_2	-----
aac52336_mus_B7-2_alt.spl	-----
nz5020.protein	QDGQGVPLTGNVTTSQMANEQQLFDVHSVRLVILGANGTYSCLVRNPVLQQDAHGSVTIT
Q99420q99420_put_hum_B7-3	-----

Fig. 4 Continued

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B7-1_HUMAN	-----
Q28499_rhesus_B7-1	-----
B7-1_RABBIT	-----
U57755_cat_B7_1	-----
B7-1_MOUSE	-----
AF157827_cat_B7-2	-----
aaf17297_dog_B7-2	-----
176088-pig_B7-2	-----
u04343_hu_B7-2	-----
P42082_mus_B7_2	-----
aac52336_mus_B7-2_alt.spl	-----
mr5020.protein	GQPMTFPPEALWVTVGLSVCLIALLVALAFVCWRKIKQSCEEENAGAEDQDGEGEGSKTA
Q99420g99420_pvt_hum_B7-3	-----
 B7-1_HUMAN	-----
Q28499_rhesus_B7-1	-----
B7-1_RABBIT	-----
U57755_cat_B7_1	-----
B7-1_MOUSE	-----
AF157827_cat_B7-2	-----
aaf17297_dog_B7-2	-----
176088-pig_B7-2	-----
u04343_hu_B7-2	-----
P42082_mus_B7_2	-----
aac52336_mus_B7-2_alt.spl	-----
mr5020.protein	LQPLKHSDSKEDDGQEIA
Q99420g99420_pvt_hum_B7-3	-----

Fig. 4 Continued

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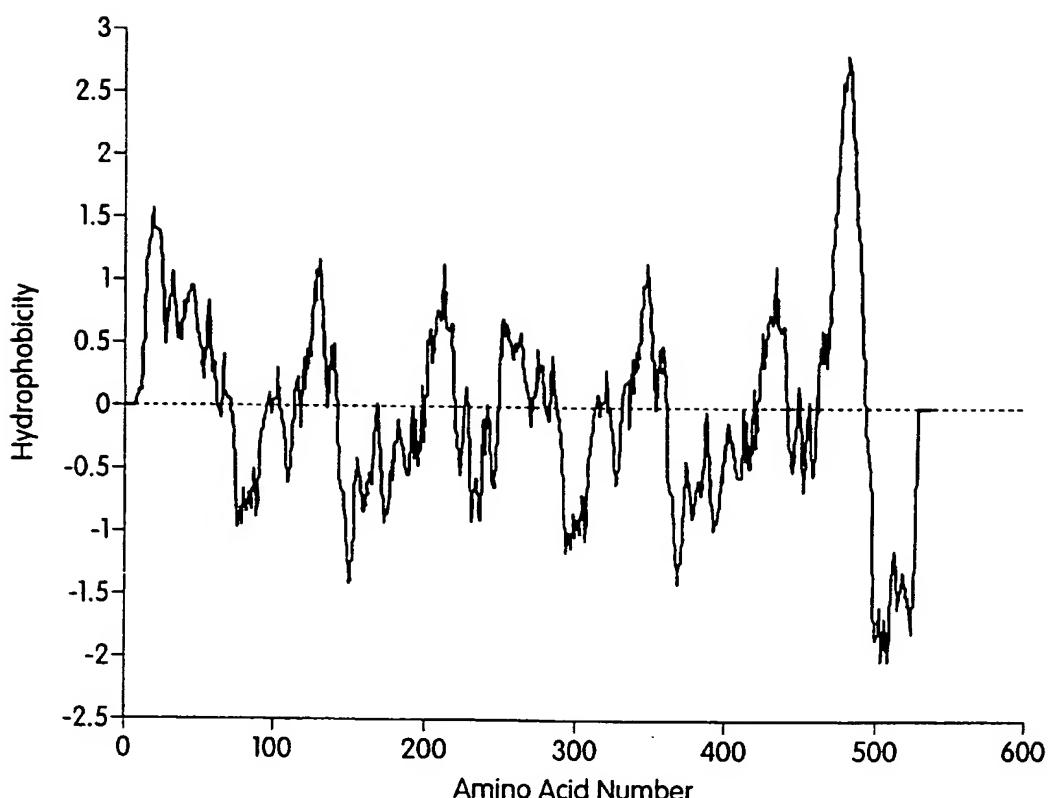


Fig. 5